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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,759	11/29/2001	Peter Larsson	040001-128	2032
27045	7590	12/23/2005	EXAMINER CORRIELUS, JEAN B	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/995,759	<b>Applicant(s)</b> LARSSON, PETER	
	<b>Examiner</b> Jean B Corrielus	<b>Art Unit</b> 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2-8, 10-22, 24-30, 32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-30 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 2-8, 10-22, 32 and 33 is/are objected to.
- 8) ☒ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Drawings

1. The drawings were received on 11/14/05. These drawings are acceptable.

However, the drawings are still objected to for the reasons set forth below.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the step or means for cyclically rotating the inverse discrete Fourier transformed/inverse Fast Fourier Transformed sequence for the **first antenna**, as recited in the base claims, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See for instance brief description of the drawing and see also MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "the step or means for cyclically rotating the inverse discrete Fourier transformed/inverse Fast Fourier Transformed sequence for the **first antenna**", as recited in the base claims, the limitation "the distance between each [predetermined] step is greater than a delay spread", as recited in claim 5, does not have proper antecedent basis in the specification.

Page 22, line 17, "to should be inserted after "prior".

### ***Claim Objections***

3. As per the response filed on 11/14/05, the objection to claims 1-8, 10-22, 24-30, 32 and 33 has been withdrawn. However, upon further consideration, a claim objection is made below.

4. Claims 2-8, 10-22 and 32 are objected to because of the following informalities:

The limitations recited in claim 2 should be recited in the active tense. For instance the limitations in claim 2, lines 6-7 can be rewritten as follow: "first, prior to the transmission, inverse discrete Fourier transforming a training sequence  $P(k)$  to a sequence  $p(n)$ " and so forth. The same comment applies to claims 3-8, 10-22 and 32.

Claim 5, line 2, "predetermined" should be inserted before "step" so as to be consistent with antecedent in claim 2, line 9.

Claim 10, lines 3-4, the recitation "depending on operating methods of primarily equalizer and FEC decoder" renders the claim awkward. In addition such limitation would not be consistent with the specification if the equalizer/FEC decoder operate in the time domain. Therefore, it is suggested that such limitation be replaced by the following: "when an equalizer and FEC decoder configured to receive the impulse response operate in the frequency domain".

In addition, the limitations recited in claim 16, lines 7-13, appear to be directed more to method type limitations rather than apparatus/system type limitations. It is suggested that the claim be amended to recite actual element performing the actual function recited in the claims for instance claim 16, lines 7-8, can be amended to recite "first, prior to the transmission, an inverse Discrete Fourier transformer transforming a training sequence  $P(k)$  to a sequence  $p(n)$ " the same comment applies to the independent claims and to similar limitations recited in claim 32.

Appropriate correction is required.

5. The 112 rejection of claims 13-15, 19 and 27 has been withdrawn in view of the comment/amendment filed on 11/14/05.

***Double Patenting***

6. The double patenting rejection of claims is moot in view of the cancellation of Claim 1 and or argument filed on 11/14/05. However upon further consideration claims 17, 32, 25 and 33 are objected to for the following reasons.

Claims 32 and 33 objected to under 37 CFR 1.75 as being a substantial duplicate of claims 17 and 25. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Allowable Subject Matter***

7. Claims 2-8 and 10-22 would be allowable if amended to overcome the objection set forth above.

Claims 24-30 are allowed over the prior art of record.

***Response to Arguments***

8. Applicant's arguments filed 11/14/05 have been fully considered but they are not persuasive. It is alleged that the drawing fig. 3 shows every feature of the claimed invention. However, it is noted that the drawing does not show the means for cyclically rotating the inverse discrete or fast Fourier transformed sequence for the **first antenna**.

The drawing is seen to present the transformed the sequence to the first antenna without any rotation. Applicant's argument with respect to the flowchart is convincing and the requirement is hereby withdrawn. Applicant further stated that the specification and combination with the description of fig. 3 provide proper antecedent for the claimed limitations. However, it is noted that the specification fails to provide proper antecedent basis for the claimed limitations of " means for cyclically rotating the inverse discrete or fast Fourier transformed sequence for the **first antenna**" and similar limitations recited in the method claims. The specification (see page 14) only teaches providing the transformed sequence to the first antenna.

The comment (Applicant's comment) refers to the specification, at times, by paragraph numbers. However, it is noted that the specification has not been numbered in paragraphs. It is suggested to refer to the specification by page and line number.

### ***Conclusion***

9. This application is in condition for allowance except for the formal matters noted above.


Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jean B Corrielus  
Primary Examiner  
Art Unit 2637

12-21-05